

# The Securitization of Housing Finance

*By Gordon H. Sellon, Jr. and Deana VanNahmen*

Prior to 1970, the system of housing finance in the United States suffered from a number of deficiencies. A principal concern was the lack of a national secondary market for mortgage loans. The absence of a secondary market resulted in geographic imbalances in the flow of mortgage funds and prevented housing from tapping into the growing supply of savings managed by institutional investors, such as pension funds, mutual funds, and life insurance companies. These problems were exacerbated by regulations on loan and deposit rates that distorted the flow of savings into the housing industry and contributed to boom and bust cycles in mortgage lending.

Since 1970, however, housing finance has undergone a radical transformation. The securitization of mortgage loans and financial deregulation have revolutionized the nature of housing finance. The first stage of securitization

occurred in the early 1970s as the introduction of government-insured mortgage securities provided the basis for a national secondary market in mortgage lending that helped eliminate geographic imbalances in mortgage flows and attract new investors to housing. A second wave of securitization occurred in the early 1980s as unprecedented interest rate volatility and financial deregulation spawned a variety of new mortgage contracts and a plethora of complex mortgage securities.

While transforming housing finance, securitization has also raised a number of important public policy issues. Among these issues are the proper scope of government involvement in the securitization process, the future role of traditional housing lenders, and the relationship between securitization and the riskiness of the financial system.

This article provides an overview of the impact of securitization on housing finance and discusses some of the important public policy issues. The article is divided into three sections. The first section describes the nature of housing finance prior to 1970 and the important part played by govern-

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ment in the housing process. The second section discusses the development of mortgage-backed securities and their impact on housing finance. The final section explores some of the implications of securitization for public policy.

### **Housing finance prior to 1970**

Government policy has played a key role in the evolution of the system of housing finance. Extensive government involvement in housing began in the 1930s as the government attempted to restore stability to a system of housing finance that had been dangerously weakened during the Depression. Government continued to have an active role in the postwar period as housing policy emphasized the provision of an expanding supply of affordable housing to meet the needs of a growing population.

#### *The role of government in housing finance*

During the Depression, the system of housing finance suffered considerable damage as the flow of funds into housing was reduced and foreclosures became widespread. Among the many government programs enacted in the 1930s to assist housing, four developments stand out as playing a key role in the subsequent evolution of housing finance. They are the establishment of the Federal Home Loan Bank System and the insurance of savings deposits, the development of government mortgage insurance, the creation of the Federal National Mortgage Association, and the adoption of the long-term, fixed-rate mortgage contract.<sup>1</sup>

Prior to the 1930s, savings and loan associations were the primary source of funds to housing. During the Depression, government pro-

grams to create the Federal Home Loan Bank System and to provide federal insurance on savings deposits helped stabilize the flow of funds into housing. Deposit insurance provided stability to housing by reducing the risks of financial loss for depositors in S&Ls. At the same time, the Home Loan Bank System promoted stability by providing liquidity to S&Ls, allowing them to invest more funds in home mortgages. Thus, the effect of these programs was to reinforce the traditional role of S&Ls in housing finance.

A second important government program was the creation of federal mortgage insurance under the FHA and, later, VA programs. Direct government insurance of mortgages had a number of consequences for housing. First, mortgage insurance allowed investors other than savings and loan depositors to commit funds to housing with reduced credit risk. Second, with the government assuming credit risk, mortgage investors were willing to accept a lower yield on their investment, which translated into reduced costs for borrowers. Third, the government mortgage insurance program required standardization of the underlying mortgage contract. Standardization is crucial both to the development of a wider primary market for mortgage lending and to the creation of a secondary mortgage market.

The third key government housing program during the 1930s was the creation of the Federal National Mortgage Association (FNMA) or "Fannie Mae." A principal function of FNMA was to improve liquidity in housing finance by providing secondary market services to the housing industry. FNMA was authorized to purchase mortgages from originators, to hold these mortgages in its portfolio, and to finance its purchases of mortgages with debt issues in the capital market. Thus, in principle, FNMA could provide stability to housing by purchasing mortgages in periods of strong credit demand and selling mortgages in periods of weak credit demand. In practice, because it was limited to purchasing

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<sup>1</sup> Much of this discussion is motivated by James L. Pierce, *Monetary and Financial Economics*, John Wiley and Sons, New York, 1984, pp. 275-295.

government-insured loans, FNMA was severely restricted in its secondary mortgage market activities. Later, however, FNMA and other similar federally created housing agencies became the vehicle for the securitization of housing finance.

The fourth government initiative introduced in the 1930s was support for a long-term, fixed-rate mortgage contract as the standard of the housing industry.<sup>2</sup> Prior to the 1930s, mortgage loans were typically short-term, 3 to 5 year, nonamortizing loans. During the Depression, the characteristics of this type of loan contributed to the housing crisis as mortgage lenders became unwilling to roll over existing loans and borrowers were unable to repay the principal. To reduce these problems, the government required the housing industry to adopt the familiar long-term, fixed-rate mortgage contract. This contract was attractive to housing lenders because deposit insurance provided a stable source of mortgage funds. At the same time, borrowers found the terms of this type of loan to be more affordable. This form of mortgage contract had important implications later, however, both for the health of the savings and loan industry and for the types of institutions providing funds to the housing industry.

### *The structure of housing finance*

In the postwar period, the demand for housing grew rapidly and the supply of investment funds flowing into housing expanded. The government programs enacted in the 1930s helped shape the way housing was financed.<sup>3</sup>

The programs enacted in the 1930s to

strengthen the savings and loan industry helped S&Ls emerge as the dominant provider of housing funds in the 1950-70 period. Indeed, as shown in Chart 1, S&Ls generally gained market share versus alternative mortgage lenders, such as commercial banks, life insurance companies, and mutual savings banks.

Government mortgage insurance also played a significant part in postwar housing finance by effectively creating separate markets for government-insured and conventional mortgage loans. The conventional mortgage market was essentially a local market with lending dominated by S&Ls. That is, conventional mortgage loans were generally made by S&Ls to borrowers in their local market using locally generated deposits.<sup>4</sup>

The market for government-insured loans operated very differently. The largest lenders for government-insured mortgages were life insurance companies and mutual savings banks.<sup>5</sup> Unlike S&Ls, these lenders generally did not originate the loans in their portfolios. Instead, they purchased the loans from mortgage banking companies who originated and serviced the loans. Also, in contrast to the conventional mortgage market, the government-insured market tended to be national in scope, with life insurance companies and mutual savings banks purchasing loans from around the country.

The dominance of the S&Ls in the conventional market but not in the government-insured market can be traced at least in part to the insurance guarantee and to the nature of the mortgage contract. Life insurance companies and mutual savings banks were attracted to the government market largely because of the insurance guarantee and the associated standardization of the loans.

<sup>2</sup> Pierce, p. 284.

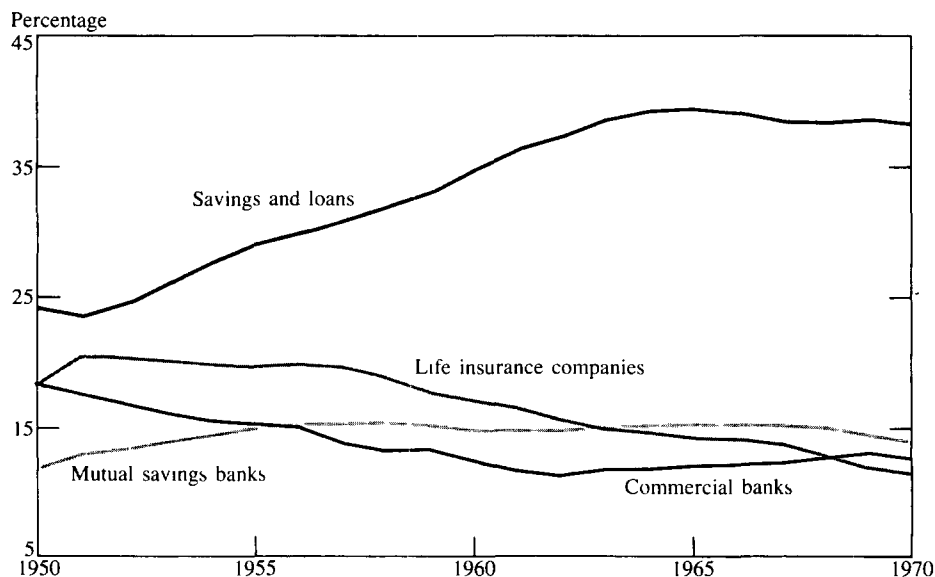
<sup>3</sup> For a detailed discussion of post-war housing finance to 1965, see J.A. Cacy, "Financial Intermediaries and the Post-war Home Mortgage Market," *Monthly Review*, Federal Reserve Bank of Kansas City, January/February 1967, pp. 12-21.

<sup>4</sup> Cacy, pp. 13-14.

<sup>5</sup> Cacy, pp. 13-14.

CHART 1

Market share: mortgage debt as a percentage of total residential mortgage debt



Source: Board of Governors, Federal Reserve System, Macro Data Library.

Thus, S&Ls faced significant competition for government-insured mortgages, which tended to reduce the profitability of these loans for S&Ls.<sup>6</sup>

In contrast, S&Ls faced less competition in the conventional market. Partly, this reflected the greater credit risks and costs of monitoring uninsured loans that excluded nonlocal lenders. In addition, other local lenders such as commercial banks were not generally attracted to the mortgage market because of the long maturity of mortgage loans.

The nature of the mortgage contract also posed difficulties for other potential mortgage lenders, such as pension funds. Although the standard mortgage contract had a long stated maturity of 30 years, the ability of homeowners to prepay the mortgage reduced the effective maturity of

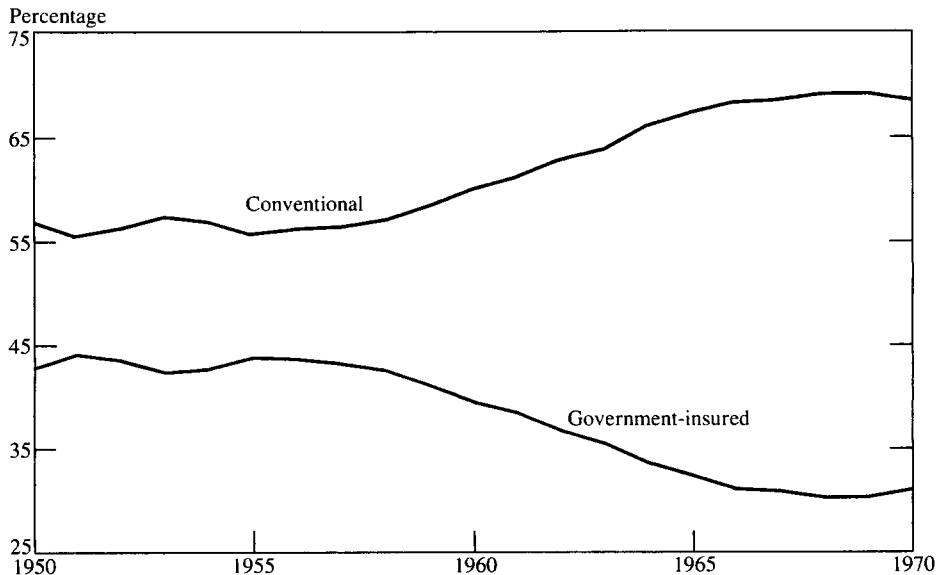
these loans. In addition, the possibility of prepayment was quite uncertain and depended upon a variety of factors such as interest rates and demographic variables. Thus, potential housing lenders with a preference for a debt instrument of a long maturity and/or a certain maturity tended to avoid mortgage loans.

The final government housing initiative of the 1930s, "Fannie Mae," played a limited role in the 1950-70 period. Originally envisaged as a means of promoting a secondary market for mortgage loans, FNMA's lending activities were greatly restricted. Until 1970, FNMA was prohibited from holding conventional mortgage loans in its portfolio. Thus, its mortgage market support activities were confined to the government-insured market. Additional restrictions on its ability to purchase older loans or to sell loans from its portfolio limited FNMA's efforts in the government market.

<sup>6</sup> Cacy, p. 19.

CHART 2

**Conventional vs. government-insured mortgage loans  
as a percentage of total residential mortgage debt**



Source: FNMA Statistical Summary on Housing and Mortgage Finance Activities, 1960-1982.

***The need for housing finance reform***

Despite the rapid growth of housing in the postwar period, policymakers were increasingly concerned that the supply of affordable housing was not keeping pace with society's needs. Academics and policymakers identified a number of problems with the structure of housing finance whose resolution would require significant reform in the government's housing program.<sup>7</sup>

The principal problems with housing finance stemmed from the fact that most of the growth in housing in the postwar period occurred in the

conventional mortgage market.<sup>8</sup> The relative shares of the conventional and government-insured markets are shown in Chart 2. Because conventional mortgage markets were local in their scope, the allocation of funds to housing was marred by geographic inefficiencies. That is, with a series of unconnected local markets for conventional loans, housing funds did not flow from areas with surplus savings to areas with excess demands for housing loans.

In addition to the lack of integration of local housing markets, there was a lack of integration of these markets with national capital markets. This problem had two dimensions. On the one hand, housing was periodically affected by credit

<sup>7</sup> See, for example, Oliver Jones and Leo Grebler, *The Secondary Mortgage Market: Its Purpose, Performance, and Potential*, University of California, Los Angeles, 1961; and J.A. Cacy, "Specialized Mortgage Marketing Facilities," *Monthly Review*, Federal Reserve Bank of Kansas City, July/August 1967, pp. 3-13.

<sup>8</sup> The differential growth in the two markets can be traced to restrictions on eligibility for government-insured loans and to factors such as liberalized terms on conventional mortgages and the development of private mortgage insurance.

crises when high market interest rates led to an outflow of deposits from S&Ls. The credit crisis in 1966 was a prime example of this “disintermediation,” and it had an important effect on the push for housing reform. On the other hand, the enormous growth in savings controlled by institutional investors, such as pension funds, mutual funds, and life insurance companies, was seen as a source of funds that potentially could be tapped for housing needs.

In contrast to the conventional market, the market for government-insured loans did not suffer from the same difficulties. The role of government insurance was particularly important in developing a national market for these loans. For example, with the protection of insurance guarantees, mutual savings banks in the Northeast could channel surplus savings to other parts of the country. Moreover, government-insured loans proved to be attractive to national institutional investors, such as life insurance companies. Finally, the government-insured market had access to capital markets through FNMA debt issues.

### **The development of mortgage-backed securities**

To create an active secondary market for both conventional and government-insured loans and to improve the linkages between mortgage and capital markets, the government made radical changes in its housing program from 1968 to 1970. The key features of this new program were a restructuring and expansion of the role of the federal housing agencies and the creation of a new type of debt instrument, the mortgage-backed security.

Since the early 1970s, the market for mortgage-backed securities has undergone tremendous growth and change. Financial deregulation and interest rate volatility have played an important part in the development of the market as new

types of securities have been created and private financial institutions have begun to assume a limited role in the market.

### *The role of government agencies*

To implement changes in its housing program, the government changed the role of FNMA and created two new housing finance agencies, the Government National Mortgage Association (GNMA) or “Ginnie Mae,” and the Federal Home Loan Mortgage Corporation (FHLMC) or “Freddie Mac.” The three agencies differ in their structure and ownership and in the functions that they perform in the mortgage market.<sup>9</sup>

In 1968, FNMA was turned into a private corporation with private management and publicly held stock.<sup>10</sup> GNMA was created at the same time to assume FNMA’s credit market support functions and to administer mortgage guarantee programs. GNMA operates as a government agency, under the supervision of the Secretary of Housing and Urban Development. FHLMC was created in 1970 in order to develop a secondary market for conventional mortgage loans. FHLMC is owned by savings and loan associations and the Federal Home Loan Banks.

A principal function of all three agencies in support of the housing market is their provision of a guarantee for mortgage-backed securities. Thus, GNMA guarantees full and timely payment of interest and principal on its securities and its guarantee is backed by the “full faith and credit”

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<sup>9</sup> A more detailed discussion of the agencies and their programs can be found in Kenneth G. Lore, *Mortgage-Backed Securities: Developments and Trends in the Secondary Mortgage Market*, Clark Boardman Co. Ltd., New York, 1987-88 edition, pp. 2-1 to 2-58.

<sup>10</sup> FNMA continues to be subject to a number of federal constraints and so is not an entirely private corporation. See Lore, p. 2-19 to 2-20.

of the government. FNMA provides a similar guarantee and, while it is no longer a government agency, is viewed in the capital markets as having "agency status." FHLMC guarantees full and timely payment of interest and ultimate payment of principal and, it too, is viewed as having agency status. Having agency status allows FNMA and FHLMC to obtain AAA credit ratings and thus incur lower borrowing costs.<sup>11</sup>

GNMA's principal role in the market for mortgage-backed securities is to act only as a guarantor of securities issued by thrifts, mortgage bankers, and other mortgage originators. That is, GNMA does not issue mortgage-backed securities or purchase mortgage loans. In contrast, both FNMA and FHLMC provide insurance guarantees, issue mortgage-backed securities, and buy and sell mortgage loans. More recently, FHLMC and FNMA have been actively involved in the design of new types of mortgage-backed securities.

GNMA guaranteed securities, backed by FHA and VA loans, were first issued in 1970. FHLMC first issued securities backed by conventional loans in 1970, while FNMA-issued mortgage-backed securities began in 1981.<sup>12</sup>

### *Types of mortgage-backed securities*

In generic form, a mortgage-backed security is a debt instrument whose interest and principal payments are either derived from the cash flows of an underlying pool of mortgages or are col-

lateralized by the mortgage pool. The market for mortgage-backed securities has evolved in several stages of increasing complexity. Despite structural differences, however, all mortgage-backed securities share a common goal: to create a security that is similar to and competitive with other debt instruments in the capital market. This subsection examines three important types of mortgage-backed securities and summarizes some of the more recent market developments.

*Pass-through securities.* Pass-throughs were the first mortgage-backed security and are still the most important type in the market. Their importance derives from the fact that they are widely held in investment portfolios and are also used as backing or collateral for other, more complex types of mortgage securities.<sup>13</sup>

The basic features of a pass-through security can be seen in a typical GNMA security. To create a GNMA pass-through, an approved mortgage originator will assemble a pool of government-insured mortgages that conform to criteria set by GNMA. The originator will then issue a security whose interest and principal represent an undivided interest in the cash flow of the underlying mortgages. That is, each investor receives a pro-rata share of the underlying cash flow. GNMA guarantees timely payment of interest and principal for securities backed by this mortgage pool and charges a fee for this guarantee. The interest rate on the GNMA security is lower than the rate on the underlying mortgages due to the GNMA guarantee fee and to payments to the servicer of the mortgage pool.

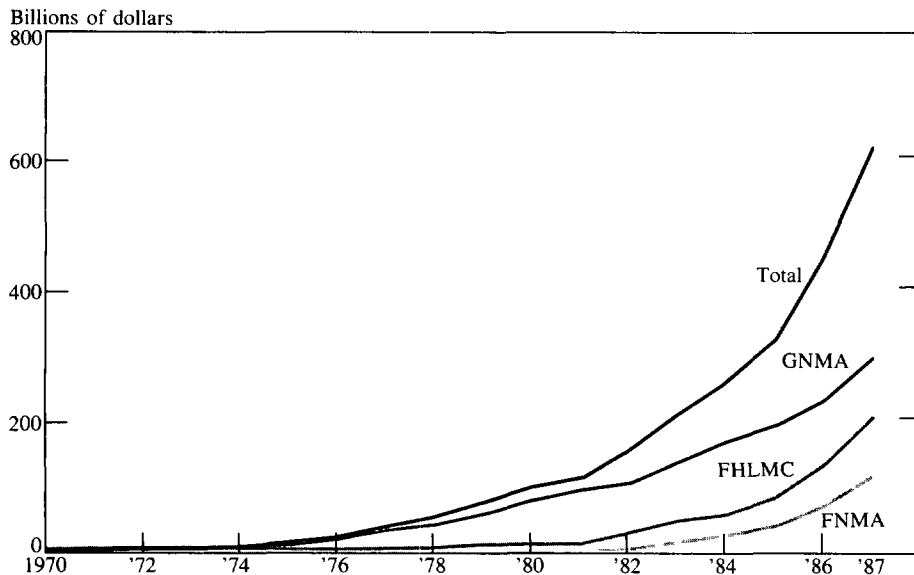
The pass-through security has a number of characteristics, both positive and negative, that

<sup>11</sup> For a more detailed discussion of these guarantees, see Lore, p. 9-21 to 9-28.

<sup>12</sup> GNMA guarantees are confined to government-insured mortgages. FHLMC and FNMA are not restricted but operate mainly in the conventional market. Both FHLMC and FNMA have upper limits on the size of the mortgage that can be included in their mortgage pools. This limit is linked to housing prices and so has generally increased over time.

<sup>13</sup> Additional information of pass-through securities can be found in Kenneth H. Sullivan, Bruce M. Collins, and David A. Smilow, "Mortgage Pass-through Securities" in *The Handbook of Fixed Income Securities*, Frank J. Fabozzi and Irving M. Pollack (eds.), Dow Jones-Irwin, Homewood, Ill., 1987, pp. 382-403.

**CHART 3**  
**Agency pass-throughs outstanding**



Source: Board of Governors, Federal Reserve System, Macro Data Library.

influence its acceptance by investors. First, because of the government guarantee, the pass-through security is free of credit risk. Second, unlike the underlying individual mortgages, the security can be issued in large denominations and is highly liquid. Third, its cash flow is monthly, unlike the cash flows of corporate or government debt. Fourth, the pass-through security is subject to the same prepayment risk as the underlying mortgages so that the size and timing of payment is uncertain. Fifth, the sale of a pass-through is treated as sale of assets; that is, ownership of the underlying mortgages is transferred to the owner of the security.

The pass-through market was created by the government housing agencies and continues to be dominated by these agencies. There have been relatively few privately issued and guaranteed pass-throughs.<sup>14</sup> The growth of GNMA,

<sup>14</sup> For the most part, private pass-throughs have involved

FHLMC, and FNMA pass-throughs is shown in Chart 3. At the end of 1987, approximately \$627 billion of agency pass-through securities were outstanding.

The development of the pass-through security has had a number of beneficial effects on housing finance. Its principal impact has been to improve the liquidity of the mortgage market, helping to eliminate the geographic inefficiencies that characterized mortgage markets prior to 1970. For example, a lender with surplus funds because of a lack of local housing demand can

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so-called "jumbo" loans, which exceed agency ceilings. In 1987, \$11.1 billion of private pass-through securities were issued. Generally speaking, privately guaranteed pass-through securities have not been cost-competitive with government-guaranteed securities. In addition, the development of a private market has been hindered by favorable tax and regulatory treatment of government securities. See Lore, pp. 1-37 to 1-49.



purchase pass-through securities. Alternatively, a lender with local mortgage demand exceeding local funding can sell pass-through securities and use the funds generated to make additional loans. A second positive effect is the ability to use pass-throughs as collateral for borrowing. Thus, institutions holding pass-through securities as assets find that the credit guarantees and liquidity make these securities better and cheaper sources of collateral than whole mortgage loans. Finally, pass-throughs improve the integration of mortgage and capital markets because they appeal to investors desiring to purchase securities rather than individual loans.

Despite these advantages, pass-through securities have not proved to be the solution to all housing finance problems. First, while pass-throughs have some of the characteristics of traditional debt securities, they also have limitations. The chief limitation is the presence of prepayment risk and the lack of certainty about interest and principal payments. In addition, monthly payment streams are less attractive to many institutional investors who are accustomed to quarterly payments. Unfortunately, for many years tax laws prevented the modification of pass-throughs to remedy these difficulties. Any change in the structure or timing of pass-through payments was sufficient to change the pass-through to a debt instrument for tax and accounting purposes.<sup>15</sup>

Second, because of their treatment as a sale of assets, pass-throughs proved to be unattractive to many thrift institutions whose loan portfolio consisted of mortgages with below-market yields. If securitized using a pass-through, these loans would have to be sold at a loss. As a result of these limitations, other types of mortgage-backed securities were developed by financial institutions

and the federal agencies.

*Mortgage-backed bonds.* A second type of mortgage-backed security is the mortgage-backed bond. Mortgage-backed bonds are debt instruments that are collateralized by mortgage loans or pass-through securities. Unlike pass-through securities, the owners of mortgage-backed bonds do not have an ownership interest in the underlying mortgage instruments and there is no automatic pass-through of cash flow from the mortgages to the bond holder. As a debt instrument, mortgage-backed bonds are a liability of the issuing institution and the underlying collateral remains on the balance sheet of the issuer.<sup>16</sup>

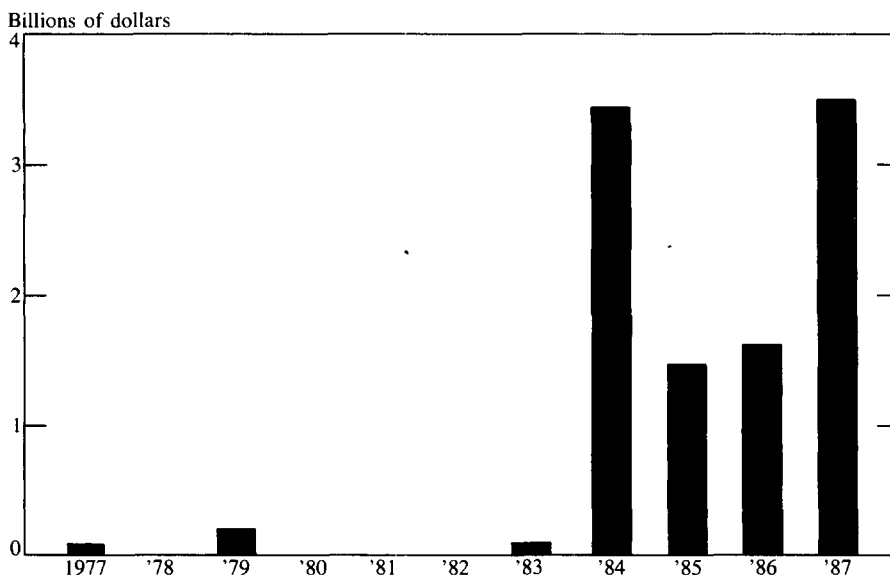
Mortgage-backed bonds were developed by thrift institutions and investment bankers in the mid-1970s as a way for thrift institutions to obtain funds without having to sell mortgages with below-market yields from their portfolios. Like corporate bonds, the timing of interest and principal payments on mortgage-backed bonds are not directly related to the cash flow of the collateral. As a result, the cash flows of the mortgage-backed bond are not subject to prepayment risk, and payments can be made quarterly or semi-annually. Thus, in principle, mortgage-backed bonds solve many of the difficulties of pass-through securities.

However, mortgage-backed bonds have their own limitations that have hindered their development. The chief problem with mortgage-backed bonds is the lack of a government credit guarantee. Even though the collateral may have government insurance, the cash flow of the collateral is not directly connected to the cash flow of the bond. Thus, to be competitive with other securities, mortgage-backed bonds must have

<sup>15</sup> For a detailed discussion of tax and accounting issues related to mortgage-backed securities, see Lore, pp. 6-1 to 6-109 and pp. 7-1 to 7-28.

<sup>16</sup> Additional information on mortgage-backed bonds can be found in Barbara Pauley and Richard Brennan, "Mortgage-Backed Bonds: Evolution Creates Opportunity," *Memorandum to Portfolio Managers*, Salomon Brothers, Inc., New York, March 10, 1988.

**CHART 4**  
**Mortgage-backed bonds issuance**



Source: Salomon Brothers: *Mortgage-backed Bonds: Evolution Creates Opportunity*, Barbara Pauley, March 10, 1988

substantial credit enhancement, typically in the form of a high degree of overcollateralization. As a consequence, mortgage-backed bonds can be an expensive way of raising funds. In addition, the absence of government insurance and lack of standardization of the bonds issues imply that these bonds have very little secondary market liquidity.

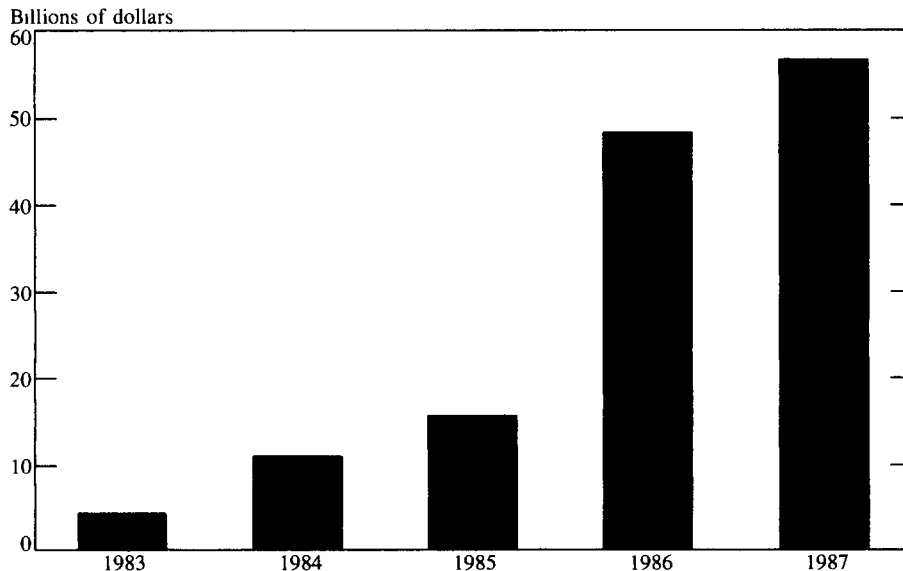
The development of the market for mortgage-backed bonds is shown in Chart 4. Initially issued in small amounts in 1977 and 1979, mortgage-backed bonds did not become popular again until 1984. Although issuance has risen in recent years, these bonds make up a very small part of the market for mortgage-backed securities. Thus, the total amount of mortgage-backed bonds outstanding at the end of 1987 was about \$12 billion, an amount that is dwarfed by the \$627 billion of outstanding federally related pass-throughs. The increase in recent years is partly due to an

increased demand for funds by thrifts and partly due to the development of new types of bonds with characteristics appealing to specific investor niches.<sup>17</sup>

*Collateralized mortgage obligations.* Collateralized mortgage obligations (CMOs) represent an important advance in the growing market for mortgage-backed securities. Introduced in 1983 by FHLMC and First Boston Corporation, CMOs are multi-class bonds backed by a pool of mortgages or by pass-through securities. CMOs share characteristics of both pass-throughs and mortgage-backed bonds. Like pass-throughs, CMOs are backed by collateral whose cash flows are dedicated to the bond. Thus, CMOs do not require as much overcollateralization as

<sup>17</sup> Thus, some issues have been in the eurobond market and others have involved new features such as yields fixed in real terms.

**CHART 5**  
**CMO's issuance**



Source: Salomon Brothers: Review of Housing and Mortgage Markets, August 1987, *Weekly Mortgage Market Update*, June 3, 1988.

mortgage-backed bonds. Like mortgage-backed bonds, CMOs are treated as debt instruments and so remain on the balance sheet of the issuer. Moreover, while the mortgages or pass-through securities backing a CMO may be insured, the CMO bonds have no government insurance guarantees.<sup>18</sup>

The basic objective in the design of a CMO was to transform mortgage cash flows into bond classes of different maturities so as to reduce the uncertainty about the timing of cash flows caused by prepayment. In this way, CMOs overcame the main limitations of pass-throughs. This goal was

accomplished by allocating principal payments and prepayments to different bond classes according to a predetermined schedule. For example, in its simplest form, a CMO might have two bond classes. The first class is a fast-paying class that receives scheduled interest payments and all principal payments and prepayments until the class is paid off. The second or slow-paying class receives interest payments, but no principal payments, until the first class is retired. In effect, the cash flows of the mortgages are transformed into two bonds, one with a relatively short maturity and one with a longer maturity.

Unlike pass-throughs, which have been the province of the federal housing agencies, CMOs have been issued by federal agencies and by investment banks, thrifts, home builders, mortgage bankers, insurance companies, and commercial banks. CMOs have been issued in a variety of formats with as few as three classes and as many

<sup>18</sup> Additional discussion of CMOs can be found in Richard Roll, "Collateralized Mortgage Obligations: Characteristics, History, Analysis," in *Mortgage-Backed Securities: New Strategies, Applications and Research*, Frank J. Fabozzi (ed.), Probus Publishing, Chicago, Ill., 1987, pp. 7-44; and Gregory J. Parseghian, "Collateralized Mortgage Obligations," in *The Handbook of Fixed-Income Securities*, pp. 404-421.

as ten classes. As shown in Chart 5, issuance of CMOs expanded gradually from 1983 to 1985 and then increased dramatically in 1986 and 1987. In relative terms, CMOs are much more important than mortgage-backed bonds and are growing in relation to the pass-through market. In 1987, \$57 billion of CMOs were issued as compared to \$3.5 billion of mortgage-backed bonds and \$235 billion of agency pass-throughs.

CMOs have advantages and disadvantages as compared with pass-through securities. The chief attraction of CMOs is the creation of mortgage-backed securities with distinct maturity classes. Thus, CMOs may attract new investors to the housing market, investors who did not find pass-through securities attractive.<sup>19</sup>

In fact, there is some limited evidence that CMOs are accomplishing the objective of attracting new investors. In 1986, thrifts, commercial banks, life insurance companies, and pension funds were the largest purchasers of CMO classes. Pension funds who have traditionally committed few funds to housing were the largest purchasers of all of the classes. Moreover, pension funds and life insurance companies mainly bought the longer-maturity classes while thrifts and commercial banks tended to purchase the shorter maturities.<sup>20</sup>

CMOs also have disadvantages which may limit their appeal. The chief disadvantage is that CMO classes are relatively illiquid securities. In sharp contrast to pass-throughs, CMO classes are issued in relatively small amounts, by a variety of issuers, with little standardization among issuers.

CMOs also lack government guarantees. Thus, CMO classes do not have a well-established secondary market and so are not nearly as liquid as pass-throughs.

*Recent developments in mortgage-backed securities.* The market for mortgage-backed securities has undergone considerable evolution in recent years. While the market originally developed as a government initiative, many recent developments have been market-driven in response to financial deregulation and greater interest rate volatility. Significant changes have been made in the structures of pass-through securities and CMOs.

An important development in the pass-through market has been the proliferation of new types of mortgage contracts. The high and volatile interest rates in the early 1980s led to important changes in the standard mortgage contract. Some of the important new types of mortgages created are adjustable rate mortgages, graduated payment mortgages, shorter term mortgages, and mortgages that are convertible from variable to fixed rates. New types of pass-through securities have been developed by the federal agencies to conform to the new mortgage contracts and to provide secondary market support for these mortgages.

A second development is the creation of pass-through securities which, like CMOs, transform the cash flows of the mortgage pool. An important factor in this development was the 1986 change in tax laws, which created the Real Estate Mortgage Investment Conduit (REMIC). A REMIC is a legal entity for issuing mortgage-backed securities without the tax and accounting difficulties that plagued their early development.<sup>21</sup>

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<sup>19</sup> With a CMO, the timing of the payments can be different from the underlying mortgages. This may make CMOs attractive to investors who want a quarterly or semi-annual payment stream.

<sup>20</sup> See Lore, p. 3-21. Similar information is provided in Parseghian, pp. 420-421.

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<sup>21</sup> For an overview of REMICS, see Panos Konstas, "REMICS: Their Role in Mortgage Finance and the Securities Market," *Banking and Economic Review*, Federal Deposit Insurance Corporation, May/June 1987, pp. 11-18. For a more comprehen-

As a result of these changes, multi-class pass-through securities have been developed in the past two years. One of the more notable examples is the stripped mortgage-backed security in which one class receives only interest payments from the mortgage pool while a second class receives only principal payments.<sup>22</sup>

CMOs have also evolved in more complex ways. One early development was the creation of a so-called Z-bond. The Z-bond class of a CMO is a zero-coupon bond that receives neither interest nor principal payments until prior classes are paid off. Thus, the Z-bond has an extremely long maturity and also has the effect of shortening the maturities of the other classes. More recent developments in CMO structures have included floating-rate and inverse floating rate classes.<sup>23</sup>

These recent developments in both the pass-through and CMO markets have helped expand the investor pool for mortgage lending by protecting investors from increased interest rate volatility. Thus, for example, the interest-only portion of a stripped mortgage-backed security can be used as a hedging device for investors in mortgage-backed securities. Certain CMO classes also have useful hedging properties while floating rate classes directly protect the investor from interest rate volatility. At the same time, however, many of these new securities have unusual price and interest rate behavior as compared to stan-

dard pass-through securities. Thus, they pose considerable risks for unsophisticated investors.<sup>24</sup>

### *Mortgage-backed securities and housing finance*

Evaluating the impact of mortgage-backed securities on housing finance involves answering two questions. What is the magnitude of mortgage securitization since 1970 and is the trend likely to continue? Have mortgage-backed securities contributed to solving the problems that plagued housing finance prior to 1970?

By most measures, securitization has had a large and growing influence on the mortgage market. One gauge of this impact is the fraction of mortgage debt that has been securitized. Chart 6 shows the amount of agency pass-through securities outstanding as a percent of residential mortgage debt. By this measure, the fraction of mortgage debt securitized has increased steadily since 1970, reaching 30 percent in 1987.<sup>25</sup>

An important determinant of the future trend of securitization is the rate at which new mortgage loans are being securitized. Chart 7 shows the fraction of new mortgages that have been turned into agency pass-through securities from 1970 to 1987. Although variable from year to

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sive treatment see Kenneth G. Lore and Kyllikki Kusma, *Mortgage-Backed Securities—Special Update: REMICS*, Clark Boardman Co. Ltd., New York, 1987.

<sup>22</sup> Stripped securities are discussed in more detail in Sean Beckett, "The Role of Stripped Securities in Portfolio Management," *Economic Review*, Federal Reserve Bank of Kansas City, May 1988, pp. 20-31.

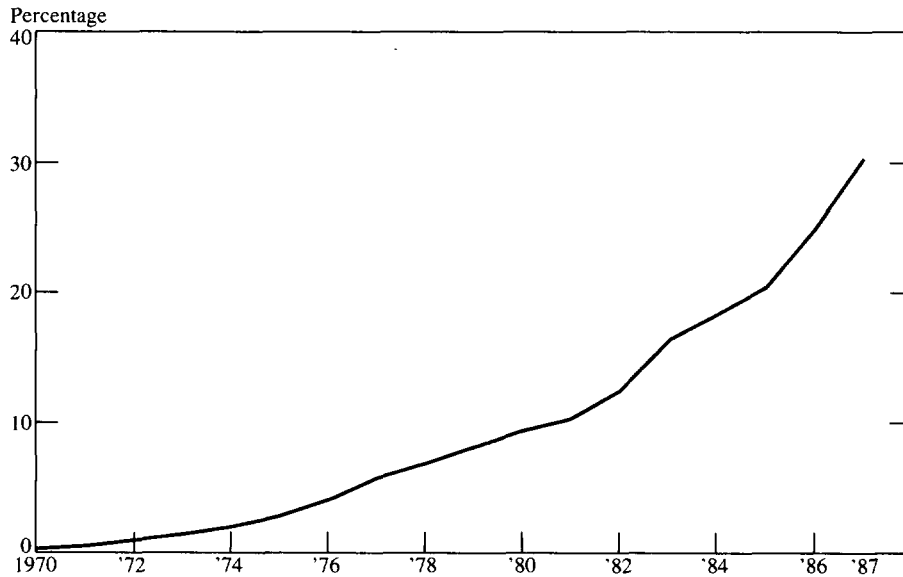
<sup>23</sup> See Lore, pp. 3-40 to 3-43. For a more technical discussion, see Gail M. Belonsky and Steven D. Meyer, "Floating Rate CMOs: The Floater, the Inverse Floater, and the Residual," *Mortgage-Backed Securities Research*, Drexel Burnham Lambert, December 1986.

<sup>24</sup> These dangers are illustrated by the estimated \$275 million loss suffered by Merrill Lynch in 1987 on a position in stripped securities. See Lore, *Mortgage-Backed Securities: Developments and Trends*, pp. 3-38 to 3-40.

<sup>25</sup> This is not a perfect measure for a number of reasons. While some CMOs are backed by pass-throughs, others are backed by whole loans that do not conform to agency guidelines. Those CMOs backed by whole loans should be included in a measure of securitization, but this data is not available. Also, this measure does not include the more traditional debt issues by FNMA and FHLMC to finance loans held in their portfolios. Adding this debt to pass-throughs would raise the share of mortgage debt securitized. The reported measure also does not include non-agency pass-throughs.

CHART 6

Agency pass-through securities as a percentage of total residential mortgage debt



Source: Board of Governors, Federal Reserve System, Macro Data Library.

year, the rate of securitization has recently approached 60 percent. If this rate continues, the stock of securitized mortgage debt will continue to grow.<sup>26</sup>

Mortgage-backed securities also appear to have helped improve the geographic efficiency of housing finance and to have strengthened the linkage between housing and capital markets. Evidence supporting this conclusion comes from recent studies that point to reduced variation in mortgage rates across regions and to increased sensitivity of mortgage interest rates to changes in capital market rates.<sup>27</sup> Additional evidence is provided by data showing that institutional investors, such as pension funds and mutual funds have been

significant purchasers of mortgage securities.

The various types of mortgage-backed securities have made different contributions to this process. Pass-through securities have played the most important role by creating a liquid, national secondary market for conventional and government-insured loans. In addition, pass-throughs have appealed to nontraditional housing investors with a preference for investment securities rather than whole mortgage loans.

Mortgage-backed bonds and CMOs have served a different function. They overcame some of the problems of the traditional mortgage contract by reducing the uncertainties of cash flows caused by mortgage prepayments. Thus, these types of mortgage securities appeal to a wider

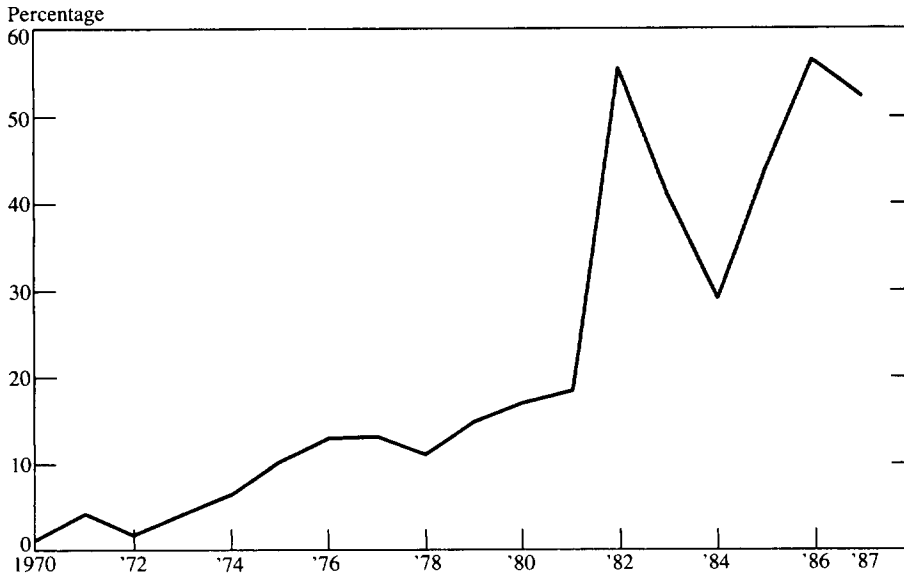
<sup>26</sup> Part of the reason for this variability is that adjustable-rate pass-throughs are relatively recent. Before these new pass-throughs were created, an increase in the market share of ARMs versus fixed-rate loans would reduce the fraction of originations securitized.

<sup>27</sup> See, for example, Howard L. Roth, "Volatile Mortgage

Rates—A New Fact of Life?" *Economic Review*, Federal Reserve Bank of Kansas City, March 1988, pp. 16-28. Also, see Stuart A. Gabriel, "Housing and Mortgage Markets: The Post-1982 Expansion," *Federal Reserve Bulletin*, December 1987, pp. 893-903

**CHART 7**

**Agency pass-through issuance as a percentage of total mortgage originations**



Source: *The Mortgage-Backed Securities Market, Statistical Annual-1988*, Guy D. Cecala (ed.), Probus Publishing Company, Chicago, IL.

Board of Governors, Federal Reserve System, Macro Data Library, Statistics from the Department of Housing and Urban Development.

range of potential investors than do pass-throughs. At the same time, without the government guarantees or standardization of pass-throughs, these securities do not have much of a secondary market so that the investor may sacrifice considerable liquidity.

**Securitization and housing finance: policy issues**

Despite its beneficial effects, the securitization of housing finance has raised a number of questions about the proper scope of government involvement in housing finance and the future structure and stability of the financial system. This section discusses the implications of securitization for three public policy issues: the relative roles of government and the private sector in

housing, the viability of the S&L industry, and the implications of securitization for financial system risk.

***Government's role in housing finance***

The expanding role of government in housing finance since the 1930s has led to increasing concern about the desirability and economic efficiency of government programs. This issue has been a particularly important topic of debate during the term of the Reagan administration. The administration has promoted the privatization of housing finance, that is, the reduction of the role of government in housing. This view runs counter to most of the housing legislation passed since the 1930s, which uses government programs to expand the availability and affordability of

housing.

Proponents of privatization question the cost and effectiveness of federal housing policy. They argue that too many resources are devoted to housing and that government subsidies crowd out more productive forms of investment. In contrast, opponents of privatization argue that, in the absence of federal programs, too little housing would be produced and housing would not be affordable.

The privatization issue directly involves the federal housing agencies and their role in the securitization process. Critics of government housing policy point out that the scope of agency activities has expanded far beyond their original intent of providing affordable housing to low income families and supporting the development of the secondary market. These critics note that as much as 80 percent of single-family mortgages conform to FNMA and FHLMC guidelines and so are eligible for securitization by the agencies. Thus, critics contend, federal housing subsidies extend to moderate and upper income families. In addition, critics argue that rather than supporting the secondary market, agency activities dominate the market and prevent the development of a private secondary market.

Most proponents of privatization focus their displeasure on the "agency status" of FNMA and FHLMC. They contend that the agencies have a competitive advantage because of the implicit government guarantee of their activities. Thus, agency competition reduces the profitability of private participants in housing finance who are without government guarantees. Generally speaking, supporters of privatization advocate turning FNMA and FHLMC into private institutions without government guarantees supporting their activities.<sup>28</sup>

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<sup>28</sup> See, for example, Terry R. Mendenhall, "Setting New Boundaries," *Secondary Mortgage Markets*, FHLMC, Fall 1987,

In contrast, supporters of current housing policy are generally opposed to a major change in government programs or a change in the status of the agencies. They argue that in the absence of government support, housing availability and affordability would suffer. In this view, scaling back government guarantees would raise housing costs and might impair the liquidity of the secondary market and the integration of housing and capital markets.<sup>29</sup>

### *Securitization and the viability of S&Ls*

A policy concern related to the privatization issue is the future role of S&Ls in housing finance. As discussed earlier, from 1930 to 1970, government housing programs gave S&Ls a central role in housing finance. Since 1970, however, the government-sponsored securitization of housing finance has tended to erode the dominant position of S&Ls. As securitization has broken down geographic barriers to the flow of housing funds and linked housing and capital markets, S&Ls have forced increased competition in mortgage lending. This increased competition has lowered the returns to mortgage lending. In addition, deposit rate deregulation has raised the cost of funds for S&Ls. As a result of these two forces, the spread or profit that S&Ls can earn on their mortgage portfolio has declined.<sup>30</sup>

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pp. 7-10; and Dennis Jacobe, "Federal Agencies Are Taking Over," in *Savings Institutions*, January 1984, pp. S-41 to S-45.

<sup>29</sup> See Michael J. Lea, "Dueling Guarantees," *Secondary Mortgage Markets*, Fall 1986, pp. 22-27.

<sup>30</sup> To put this issue into perspective, it must be recognized that this issue is not confined to the thrift industry. Similar concerns have been raised about the impact of securitization on the future of commercial banks both in their domestic and international markets. Thus, the viability of S&Ls is really part of a broader question about the implications of securitization for traditional depository intermediaries. See, *Recent Trends in Commercial Bank Profitability*, Federal Reserve Bank of New York, 1986, and *Recent Innovations in International Banking*, Bank for International Settlements, April 1986.



The adverse effects on S&L profitability can be seen more clearly by looking at the variety of functions or services provided by S&Ls. Historically, S&Ls have originated mortgage loans; serviced these loans; assumed the credit, interest rate, and prepayment risk of these loans; and provided liquid savings and transactions accounts to depositors. Securitization and deregulation have combined to alter the profitability of many of these activities. Thus, for example, government insurance of pass-through securities has transferred credit risk responsibilities to the government, reducing S&L earnings. Interest rate risk has been transferred to borrowers through adjustable rate loans and to purchasers of mortgage-backed securities. Deposit rate deregulation and the growth of savings alternatives have eroded any local competitive advantage of thrifts in raising funds.

These changes have led some to speculate that the primary function of S&Ls in the future may be to provide mortgage banking activities such as loan origination and servicing. While this may be an extreme view of the impact of securitization on S&Ls, there is no question that the exclusive focus of S&Ls on mortgage lending is diminishing. This reality is reflected in recent legislation expanding thrift powers beyond mortgage lending and reducing the tax incentives for S&Ls in mortgage lending.

At the same time, however, securitization has had positive effects on thrifts. Holding mortgage-backed securities can provide geographic diversification that makes S&L loan portfolios less sensitive to local economic conditions. In addition, holdings of mortgage-backed securities can provide liquidity to thrift investment portfolios as well as serving as an efficient form of collateral for borrowing. Finally, mortgage-backed securities and derivative securities can help S&Ls manage interest rate risk more effectively by providing hedging instruments or by providing sources of funds that allow better matching of

asset and liability maturities.

### *Risks to the financial system*

A third policy concern is the impact of housing securitization on the stability of the financial system. One issue is the effect of securitization on thrift institution incentives to take risk. That is, if the returns to mortgage lending are reduced, thrifts may have incentive to undertake more risky investments with adverse effects on the deposit insurance system. If so, regulatory policies may have to be adjusted to allow for greater supervision or to change thrift incentives through risk-based deposit insurance or capital requirements.

A broader question concerns the relationship between interest rate risk and financial stability. In the past, S&Ls held much of the outstanding mortgage debt and absorbed a good deal of the associated interest rate risk. This proved to be disastrous for many thrifts in the volatile interest rate environment of the early 1980s. With a part of the potential interest rate risk of mortgage lending transferred to borrowers and to other lenders, S&Ls may have less risk exposure but the impact of interest rate volatility on the health of the financial system is unclear. A particular concern to policymakers is investors' understanding of the behavior of the more exotic derivative mortgage securities in an adverse interest rate environment.<sup>31</sup>

A final aspect of risk related to mortgage securities is counterparty risk or fraud. There have been well-publicized instances in recent years in government securities markets where collateral turned out to be inadequate or nonexis-

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<sup>31</sup> Federal regulators of banks and thrifts have recently questioned the appropriateness of investments by these institutions in derivative mortgage securities.

tent. In addition to sizable financial loss for individual investors, these events may cause disruptions in the normal functioning of financial markets or the payments system. Since mortgage securities are frequently layered in complex ways, the presence and adequacy of collateral may be difficult to determine in many situations. This problem could be compounded by investors lulled into complacency by the assumption of a government guarantee where none exists.

### **Summary**

The development of mortgage-backed securities has revolutionized housing finance. These secu-

rities have allowed the creation of a national secondary market for mortgage loans that has improved the geographic flow of mortgage funds. In addition, these securities have served to improve the linkages between mortgage markets and capital markets and have attracted new investors to mortgage lending.

At the same time, however, the continuing growth and development of the market for mortgage securities has raised important questions about the appropriate role of the government in the securitization process, the viability of traditional housing lenders, and the impact of mortgage securitization on risk and stability in the financial system.